

CLAIMS

1. A method of forming a ZnO nanorod array, which comprises:
coating on a substrate ZnO nanoparticles serving both as a buffer layer and a
5 seed layer; and
growing the ZnO nanoparticles into crystals in a nutrient solution containing
hexamethylenetetramine and Zn nitrate, Zn acetate, or a derivative thereof.

10 2. A method of forming a ZnO nanowall array, which comprises:
coating on a substrate ZnO nanoparticles serving both as a buffer layer and a
seed layer; and
growing the ZnO nanoparticles into crystals in a nutrient solution containing Zn
acetate or its derivative and sodium citrate.

15 3. The method of claim 1 or 2, wherein the substrate is made of Si, sapphire
(Al₂O₃), GaN, ScAlMgO₄, or LiNbO₃.

20 4. The method of claim 1, wherein the operation of growing the ZnO
nanoparticles in the nutrient solution is performed at 30 to 400°C, and the volume ratio
of Zn nitrate, Zn acetate, or a derivative thereof, to hexamethylenetetramine in the
nutrient solution is 10:1 to 1:10.

25 5. The method of claim 2, wherein the operating of growing the ZnO
nanoparticles in the nutrient solution is performed at 30 to 400°C, and the volume ratio
of Zn acetate or its derivative to sodium citrate in the nutrient solution is 10:1 to 1:10.

6. A ZnO nanorod array formed by the method of claim 1.

7. A ZnO nanowall array formed by the method of claim 2.